

Combination of Surgical Excision with Postoperative Triamcinolone Injections in Management of Keloids

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Abstract

Background: Keloid is an abnormal healing response in response to trauma. Many modalities of treatment are available with none established.

Methods: This a prospective study where 40 participants with keloids were included. Surgical excision followed by intralesional steroid was done with a maximum follow up of 6 month after surgical excision. Effects of this combination therapy was assessed using Japan scar workshop scale.

Results: The patients mean age was 30.4 ± 6 . After the combination therapy all patients showed a significant improvement in Japan scar workshop scale with minimal recurrence.

Conclusion: Surgical excision with intralesional steroids is an effective and safe treatment for keloids.

Keywords: Keloid, excision, steroids

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Introduction

Keloid is an excessive connective tissue response to a cutaneous injury (reticular dermis) resulting in abnormal growth of scar at the site of skin injury, which usually does not regress spontaneously.[1-4] Keloids tend to grow symptomless, but still can often cause pain or itching. They have a functional, aesthetic, or psychosocial impact on patients, as highlighted by quality-of-life studies [5].

Keloids commonly occurs in susceptible individuals after superficial or deep cutaneous trauma such as ear piercing, trauma, burns, Surgery and some cutaneous disorders. [6] Risk factors include younger age, pigmented skin, mobile sites with high tension, ethnic and

genetic predisposition.[7] Potential site for keloid formation after trauma are abdomen, chest, shoulder, and upper back. However, Earlobes and the helix of the auricle are the most common sites for keloid formation. [8]

Keloids are often resistant to treatment, and recurrence is common. Multiple modalities are present to manage keloid but none has proved to provide cure as a solitary treatment. [5] Various therapeutic options include pressure therapy, cryotherapy, silicone-gel sheeting, laser treatment, antitumor or immunosuppressive agents and intralesional corticosteroids and surgical interventions with radiation.[9-14]

However, as a common consensus surgery is least advised monotherapy by clinicians because of high risk of recurrence. Each modality of treatment has its own pros and cons, but some studies have reported zero recurrences of keloid scarring with the use of perioperative corticosteroid injection.[15,16]

The results of this review indicate keloidectomy followed by radiation therapy provide satisfactory recurrence rates; however, clinical studies evaluating these treatments do not describe treatment outcomes or use different definitions of keloid recurrence. Consequently, recurrence rates vary widely, making comparisons across studies difficult

The aim of this study is to prospectively evaluate the outcome of treating keloids by a combination of surgical excision and perioperative corticosteroid injections as an effective and economical treatment in an Indian population. To assess recurrence based on Japan Scar Workshop Scale.

Material and Method:

This prospective study was conducted in the Jaipuria Hospital and RUHS Medical College, Jaipur from March 2020 to January 2022. This study was approved by institutional review board of hospital. During this time, 40 patients who presented with keloid scars were enrolled. Each participant underwent the protocol of surgical excision under loupe magnification combined with intraoperative, and postoperative corticosteroid injections (Triamcinolone 10mg/ml) after a full clinical assessment and necessary laboratory tests.

Demographic data of patients, anatomical location, keloid duration and keloid dimensions were noted. Inclusion criteria were patients with keloid who were above 18 years of age, who had not taken any medical or surgical treatment in past 3 months, and patients who were willing to give informed consent for treatment. Pregnant and lactating women; children <

18 yr, Patients who received keloidal corticosteroid injections within the previous 3 months or had a history of radiotherapy for treatment of keloids were excluded from study. Photographic records were made before starting treatment and at each subsequent visit.

The protocol involved at least four steroid injections (one intraoperative and three postoperative) and maximum up to six injections. The interval between injections was 1 month, making the total duration of the intervention 4 months. After the excision of keloid, all patients were followed up after 7 days, and sutures were removed according to signs of healing.

Silicon sheet was applied over the surgical site as postoperative adjuvant therapy for 6 months. In patients where silicon sheet application is not possible (ear) topical silicone gel twice daily was used after surgery as adjuvant therapy and continued daily for 6 months. The patients were instructed to massage silicone gel on scar area for 5min twice daily.

All patients were followed up postoperatively for at least 6 months, and recurrence was recorded if the surgical scar showed hypertrophy or started to rise above the level of the margins and if the operative area became thicker than adjacent tissue at any time during the follow-up period.

Keloid recurrences were defined using both objective and subjective measures. Japan Scar Workshop Scale (JSS 2015) was used to assess recurrence which uses both a subjective rating of pain and itch and objective ratings of induration, elevation, scar redness and erythema around scars on 4-point scales to create a total score of 0– 18. (Table 1)

Data collection was conducted within the study period and analysed by SPSS software (Version 20, Chicago, IL, USA). Descriptive data is presented as mean±SD. Numerical data were presented using mean

± SD or medians and ranges if not normally distributed, whereas percentages were used for categorical data.

Table 1: Japan Scar Workshop Scale (JSS 2015) to assess scar recurrence

Evaluation (For judging treatment results and follow up)			
1. INDURATION			
0: None	1: Weak	2: Mild	3: Strong
2. ELEVATION			
0: None	1: Weak	2: Mild	3: Strong
3. REDNESS OF SCARS			
0: None	1: Weak	2: Mild	3: Strong
4. ERYTHEMA AROUND SCARS			
0: None	1: Weak	2: Mild	3: Strong
5. SPONTANEOUS AND PRESSING PAIN			
0: None	1: Weak	2: Mild	3: Strong
6. ITCH			
0: None	1: Weak	2: Mild	3: Strong
TOTAL 0-18			
Remarks			
Weak symptoms exist in less than 1/3 of the area, or are intermittent			
Strong symptoms exist in entire region or are continuous			
Mild between weak and strong			

Result:

Forty participants were included in this study with an age range of 18–52 years with mean age (30.4± 6.08). Out of these 34 (85%) were female and 6(15%) were males. The keloids were located over the ear in 27 participants (67.5%), Chest (Sternal region) in 8(20%) patients and over arm in 5(12.5%) patients.

None of the patients were lost to follow-up. Healing was uneventful for 38 (95%)

participants after surgery, but two patients (5%) showed partial dehiscence after removal of stitches, and complete healing was achieved by local wound care within an additional week. Recurrence was recorded in 1 (2.5%) patient during the follow-up period that started at 3 months postoperatively. A summary of the above is presented in Table 2.

Table 2: Demographic and clinical data

S. No.	Varriables	Number(Percentage)
1	Mean Age	30.4±6.08
2	Sex	
	Female	34(85%)
	Male	6(15%)

3	Location Ear Chest Arm	27(67.5%) 8(20%) 5(12.5%)
4	Post Op Infection/ Suture dehiscence	2(5%)
5	Recurrence	1(2.5%)

JSS 2015 Score was used to objectively measure scar recurrence

Mature scars have a score of 5 or less.

hypertrophic scars have a score of between 6 and 15 points.

Keloids have a score of 16 points or more. [17]

Table 3: JSS 2015 Score at 6 months

S. No.	JSS Score	Number of Patients
1	< 5	36
2	6-15	3
3	> 16	1

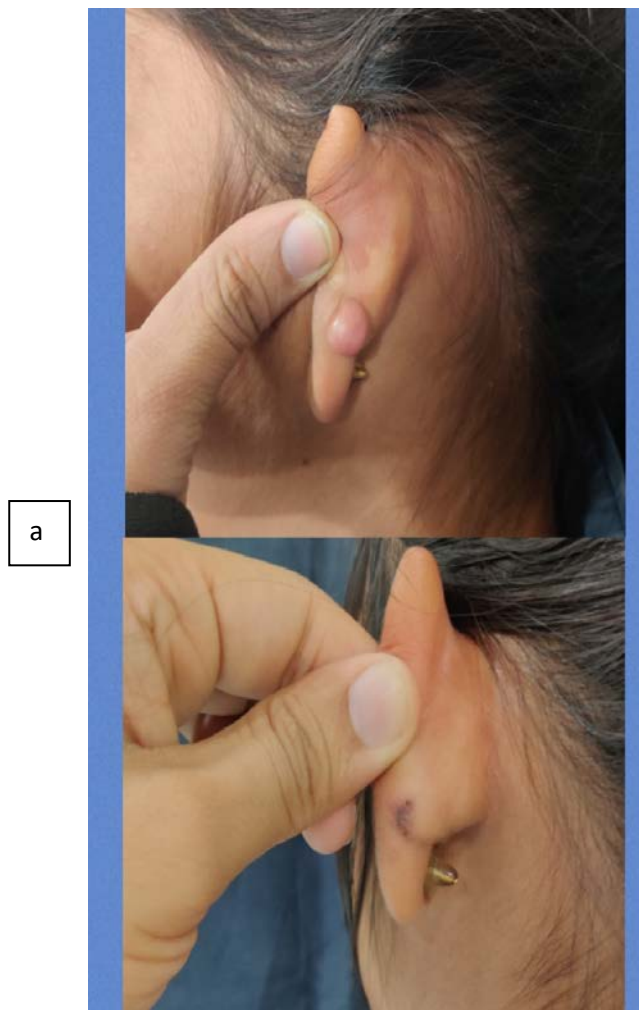


Figure 1: A. Pre operative image of ear keloid B. Post op image at 3 months



Figure 2: A. Pre op image B. Immediate post op C. After suture removal D. After 6 months

Discussion:

Various treatment modalities are available in practice for treatment of keloid as surgical excisions, occlusive silicones, injections of corticosteroids, 5-fluorouracil, methotrexate, cryosurgery and applications of Nd:YAG, CO₂ and dye lasers. [1] But still there is no guideline that can define the efficacy of the wide variety of treatment techniques as represented by a low recurrence rate and satisfactory aesthetic result for management of keloids.[18] The recurrence rate varies markedly with range

from 50 to 100% in case of excision alone to lower recurrence rates when different therapeutic methods are combined and implemented together.[19,20]

Based on the particular localization surgeons combine keloid excision with various nonsurgical therapeutic procedures.[18] The extralesional excision of keloid mass (active perilesional keloid fibroblast removed) may help to avoid recurrence.[21] The use of magnification facilitates removal of root and surrounding pseudopods of keloid with minimal excision of surrounding normal tissue.

Minimal removal of surrounding tissue helps in tension-free closure after keloid excision.

The most common location of keloid in our study was ear. Earlobe keloids are classified as minor keloids according to the international clinical recommendation on scar management. [22,23] They cause itching, pain, cosmetic deformities, and significant psychological distress to the patient.[24] The common cause of ear keloid is piercing injury.[25]

Corticosteroids can inhibit the migration of activated fibroblasts and reduce inflammatory responses by inducing vasoconstriction.[26] Beside softening the keloid, corticosteroids are known to reduce symptoms, such as itching sensations and tenderness. Its effect is more when combined with surgical excision. Multiple serial injections are required to prevent recurrence.

Despite long-lasting results of steroids, the complications comprised of wound dehiscence, skin and subcutaneous tissue atrophy, depigmentation, flap necrosis, and abscess formation at the intralesional site.[27,28,29,30]

Most of the studies reviewed by us did not objectively define keloid recurrence, or simply defined it as the reappearance of keloid tissue. This likely affected accurate assessment of recurrence rates for keloid scars following surgical excision and intralesional steroid. Therefore, consensus should be reached regarding the use of objective measures for defining keloid scar recurrence for use in clinical research.

Limitation:

Smaller sample size, short follow up and lack of placebo control group are few shortcomings in this study.

Intralesional corticosteroids dose variation according to size and site of lesions, total duration after surgical excision for which these injections can be given safely and

ideal interval between two injections, needs to be evaluated in further studies.

Conclusion:

Our study shows a good response after complete surgical excision and postsurgical intralesional corticosteroids as adjuvant therapy for keloids. Use of magnification during excision ensures complete removal of keloid tissue and a tension-free closure of wound.

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